

DEFINING THE ATOM

CHAPTER 4

ATOMIC STRUCTURE

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- Which hold true?

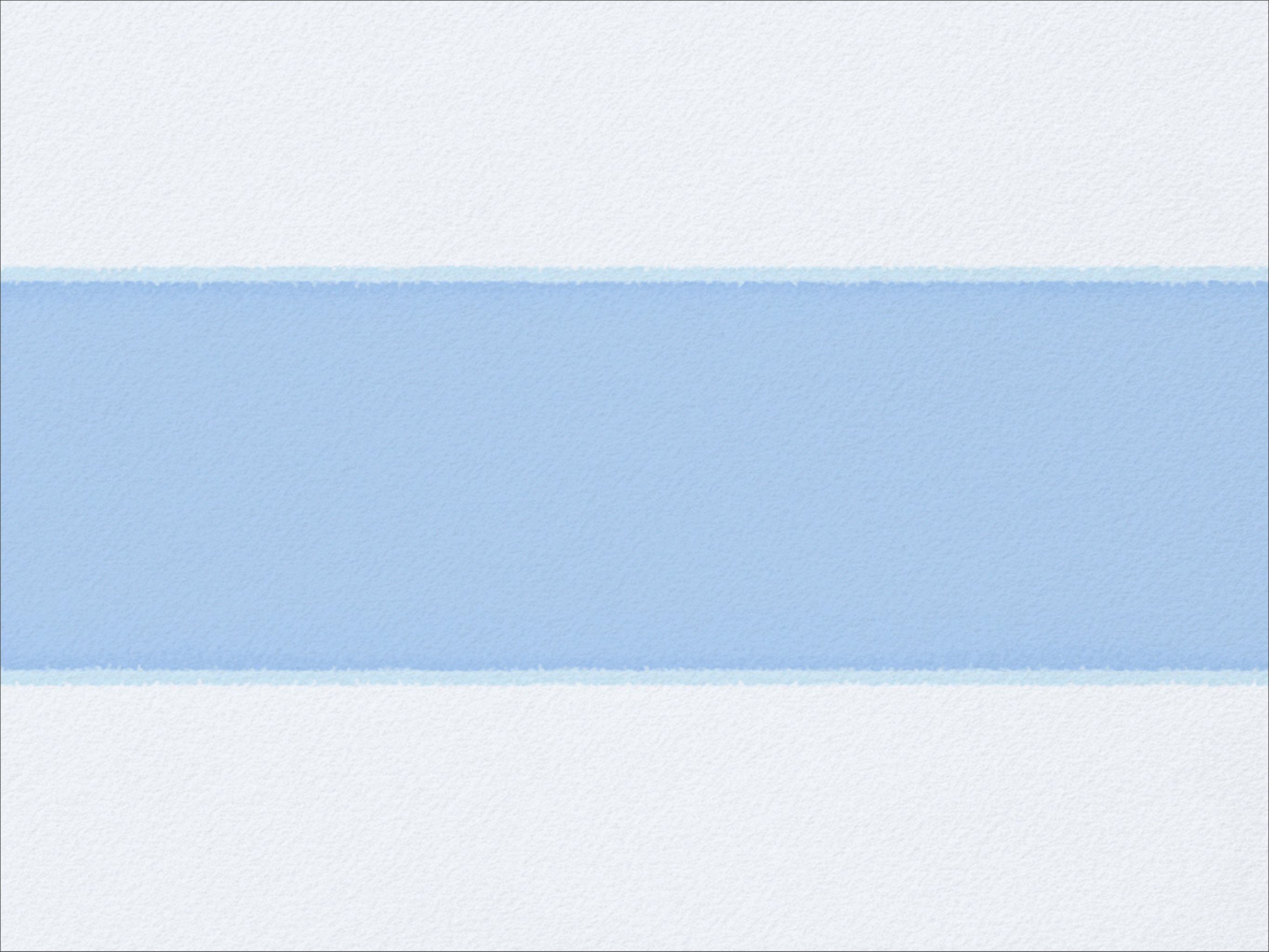
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- Section 4.1 Assessment on page 103



STRUCTURE OF THE NUCLEAR ATOM

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How do we know what an atom looks like if we can't see it?
(think like a scientist exercise)

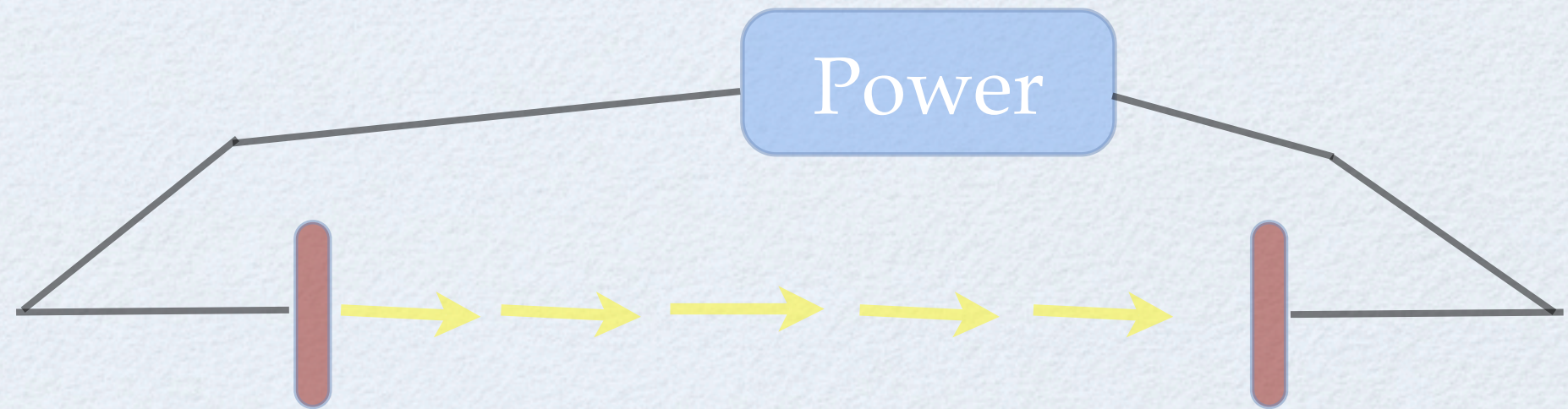
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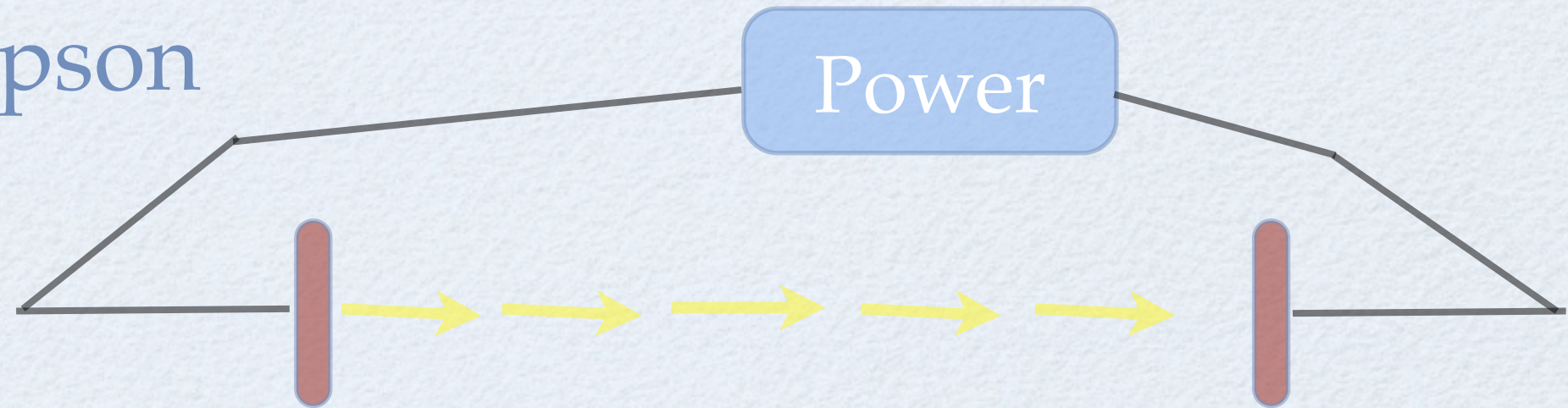
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- Science comes from a bunch of thieves!!

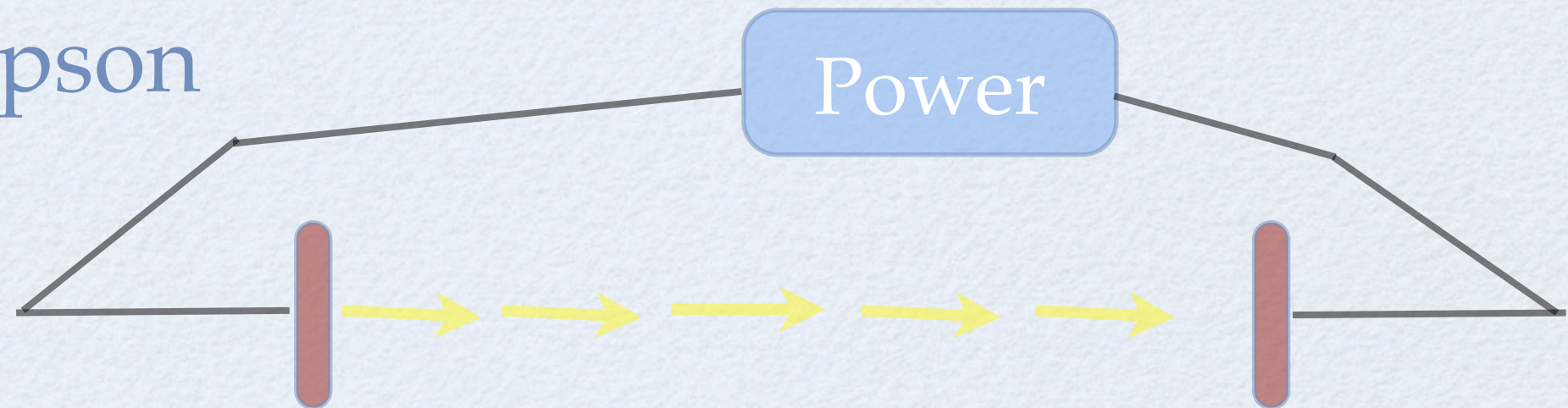


- Discovery of the Electron
1897 JJ Thompson



Internet Cathode Ray

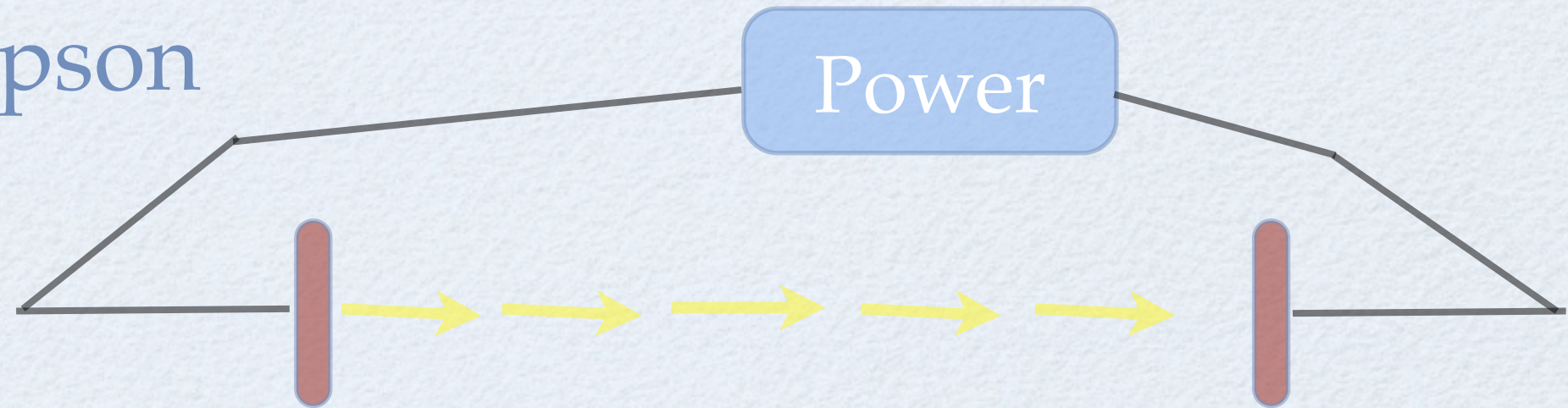
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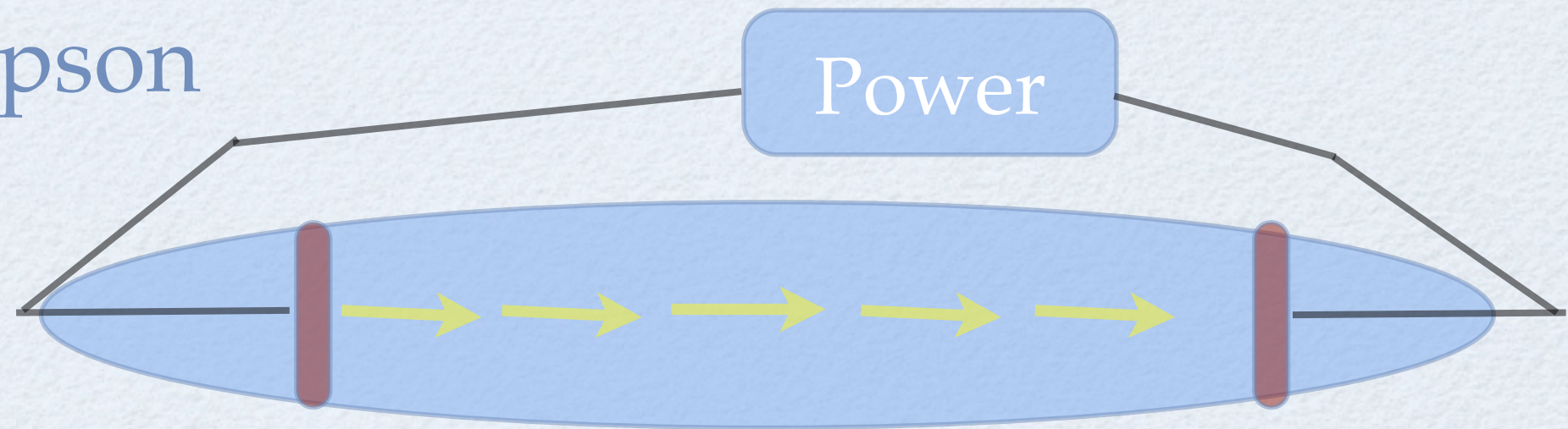
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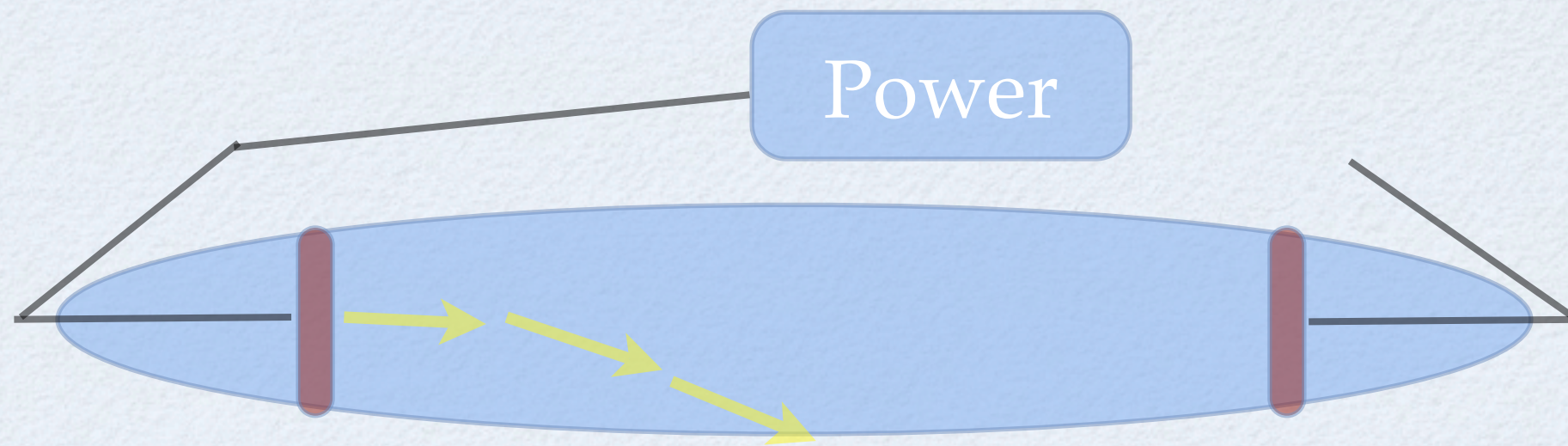
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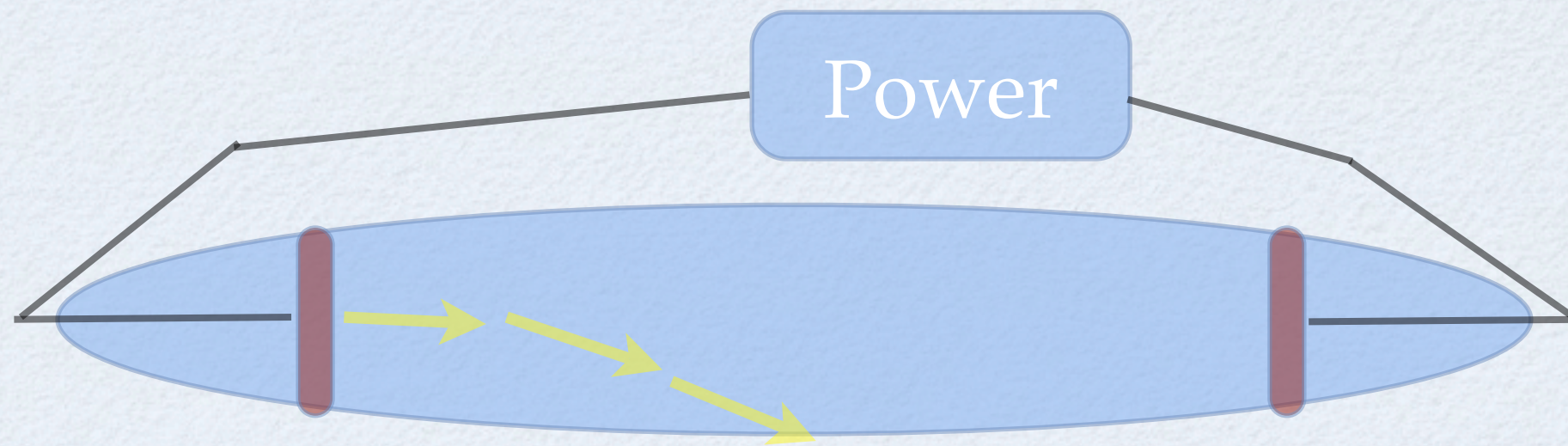
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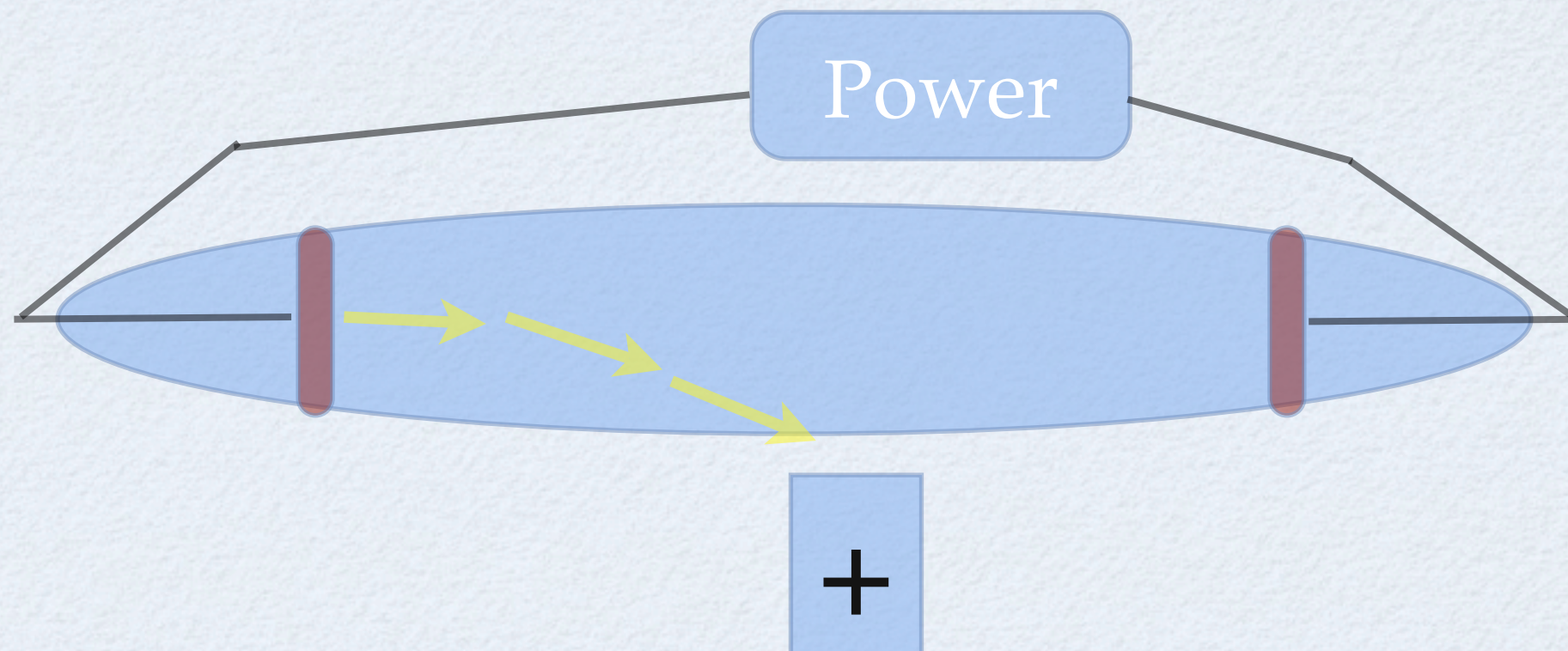
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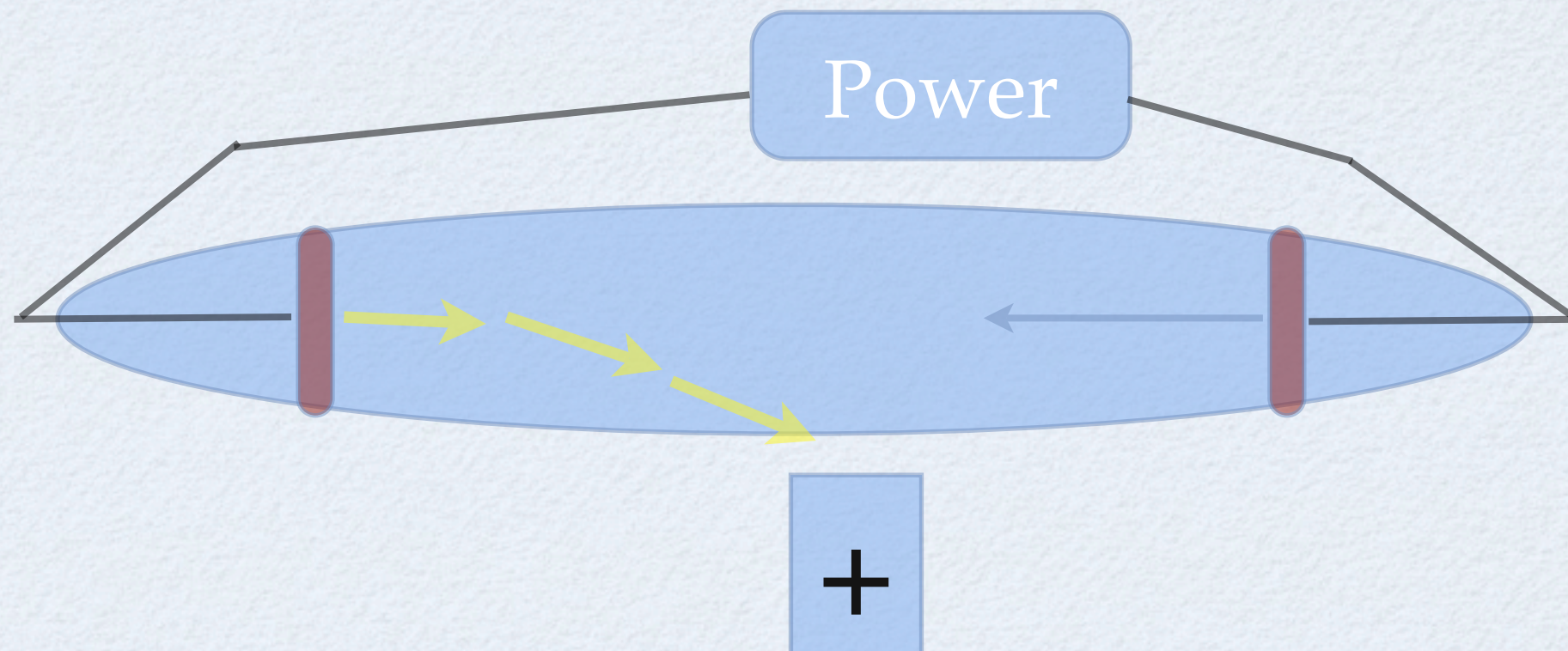
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 - Bombarded Beryllium with alpha particles emitted from polonium and found that it gave off electrically neutral radiation
 - Chadwick then took the Beryllium emission and bombarded hydrogen, helium, nitrogen, etc. He compared the energies and found a neutral mass approximately equal to that of a proton

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- What makes one element different from another?
- Atomic Number: the number of protons in an atom which gives the atom its identity
- Atoms are electrically neutral
How many protons and electrons does Carbon have?
- Atomic Number is located in the lower left hand corner before a symbol (${}_6\text{C}$) except for on the periodic table --> ${}^6\text{C}$

- Complete the following chart



ELEMENT	ATOMIC #	PROTONS	ELECTRONS
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ELEMENT	ATOMIC #	PROTONS	ELECTRONS
● Complete the following chart K	19		

●

ELEMENT	ATOMIC #	PROTONS	ELECTRONS
K	19		
			5



ELEMENT	ATOMIC #	PROTONS	ELECTRONS
K	19		
			5
		23	

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S			



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- # of neutrons = mass # - # protons
 $^{16}_{8}\text{O}$

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			10	11	
		13			6

- Find the Number of Neutrons:

a) Oxygen-17

b) ^{32}S

c) $^{108}_{47}\text{Ag}$

d) Bromine-80

e) ^{207}Pb

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- Write the symbols for each element with the correct atomic number and mass number in proper notation

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- ISOTOPES OF HYDROGEN

H-1, H-2, H-3

- CALCULATING ATOMIC MASS

Atomic Mass: a calculated percentage of existing isotopes according to abundance

mass isotope x % abundance (DECIMAL FORM)

mass isotope x % abundance

+ mass isotope x % abundance

- Element X has two natural isotopes...
X-10 and X-11
X-10 weighs 10.012amu and is 19.91% abundant
X-11 weighs 11.009amu and is 80.09% abundant
What is the atomic mass?

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Which is more abundant?

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- EXTRA Page 117 #23,24 and Section Assess. 4.3
- Describe the evolution of the atom from Democritus to Dalton to Thomson to Rutherford??